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Connecticut Department of Environmental Protection



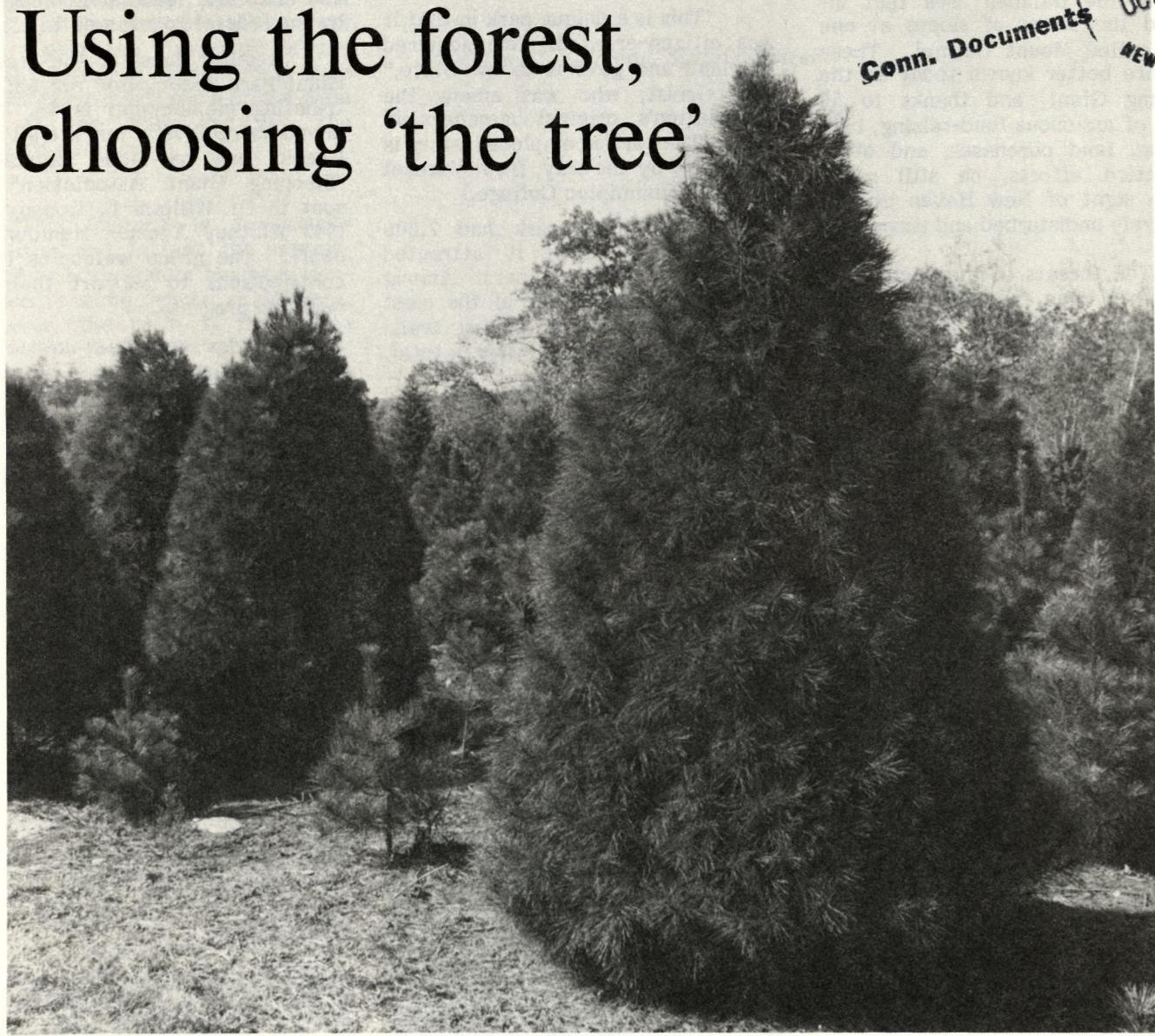
# citizens' bulletin

Volume 7 Number 4

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## Using the forest, choosing 'the tree'



**Inside** Gift, Giant Size, 2; Managing Public Forests, 3; Cropping Christmas Trees, 7; Containing the Container, 10; Seedling Offers, 11; Sleigh Rallies, 12; CAM: Municipal Implementation, 14; Electrifying Driving, 15; FYI: Open Space Indexing, 16; 208: Hazardous Waste Study, 17; Lead Shot, 18; Trailside Botanizing, 20.

# Reclining Figure, Yours Courtesy of 'Giant' Association

In 1638 Theophilus Eaton paid Chief Montowese of the Mattabesec tribe eleven bolts of cloth and a coat for 130 square miles of land in the Hamden area that included the series of slopes at one time called Mount Carmel. These hills are better known today as the Sleeping Giant, and thanks to 55 years of assiduous fund-raising, bargaining, land purchases, and other protection efforts, he still rests, within sight of New Haven harbor, relatively undisturbed and unspoiled.

The threats to the Giant over the years have included trap rock quarrying, suburban development, highways, and TV towers. Preservation credit is due the Sleeping Giant Park Association.

Park beginnings actually go back as far as 1911, when the then-owner of the "head," Judge Willis Cook, leased his property for trap rock quarrying. Recognizing the area's natural significance, he included a covenant that quarrying operations were not to take rock from areas visible from Mount Carmel Avenue, south of the Giant.

By 1924, Cook had died, his widow held the land, and despite the covenant, quarriers were working their way around the head of the Giant, producing a visible scar. (Before this part of the story was complete, they had threatened his "chin" as well.)

The Sleeping Giant Park Association was formed in March 1924 by Yale Forestry School Professor James W. Toumey with the object of stopping the destruction and preserving the area as a park. Over 100 persons joined at the first meeting.

By 1925, the Association had managed to buy 291 acres on the

Giant, had been given 129 more, and had opened a park. The next ten years, which included the depths of this country's Depression, included impressive fund raising efforts, the purchase of Mrs. Cook's property in 1930, a round of negotiations and three court cases before the Association was finally able to purchase the quarrying rights in 1933.

Efforts didn't stop there. By 1958, Sleeping Giant State Park had reached 650 acres; by 1974, 1,300; recent gifts and acquisitions have brought it to 1,400 acres. And it's not complete yet. "We expect to have 2,000 acres by the year 2000," says Sleeping Giant Park Association President Norman W. Greist.

"This is a unique park in that it was citizen-created. We acquired the land and gave it to the State," says Greist, who was among the Association's original members in 1924. (The park's complete history is available, by the way, from Michael Adess at Quinnipiac College.)

In 1928 the park had 7,000 visitors. In 1978, it attracted 129,000 plus 2,000 campers. Among its attractions are one of the most concentrated sets of hiking trails around. There are 30 miles in total,

*Sleeping Giant Association President Norman Greist, left, and Pat Evans, center, show some of their trail work to DEP Parks Planner Brian Kerr and Citizen Participation Coordinator Martina Delaney.*



"head to toe" on the Giant. They were designed and, to a great extent, built by Greist and Richard C. Elliott seventeen or eighteen years ago.

The eleven trails range from fairly easy to difficult, Greist says. Not included in the 30 miles of the system is a 1.6 mile stretch Greist calls "a fat man's trail" that leads to the park's tower, 739 feet above sea level. There are also opportunities for bushwhacking in unblazed areas, rock climbing on the Giant's chin, and nature study on a nature trail.

In 1977, the park became a part of the National Recreation Trails System, a system of natural and historical landmarks recognized by the federal government.

Regular dues for the Sleeping Giant Park Association are \$3; contributing membership is \$5. New members receive a large trail map. Checks can be made payable to "Sleeping Giant Association" and sent to Dr. William L. Doheny, Jr., 1565 Whitney Avenue, Hamden, CT 06517. The group welcomes larger contributions to support their acquisition program.

Besides having a unique history, the Giant is also a singularly personable park. "At his highest point, the Giant is 777 feet high -- back to front. But if you stood him on his hind feet, he'd be about 20,000 feet tall," Greist says. "I look out at him every morning from my house and say, 'I'm glad you're still asleep!'" ■

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When the early European settlers arrived on the shores of what is now the United States, the forest must have seemed limitless and most certainly represented a major obstacle to expanding settlements. Within a very short time, however, the forests were recognized as a valuable resource, and, by the late 1600s, wood products were being exported to England by the fledgling colonies.

The growth of the lumber industry closely paralleled that of the country. The timber resource of New England was generally exhausted by the late 1800s. The loggers moved west, and the vast forests of the Lake States were cut over during the first part of the present century. Then it was time for the big-timber areas of the West and, in the 1950s and 60s, the southern pineries.

This history is necessarily simplified and, in fact, the harvesting of wood products has been continuous to some degree in all areas. However, the point is that there have been four major areas of the country where the forests have been exploited. The woods of New England, generally protected and under-utilized since the 1920s, now represent a renewed, healthy, vigorous and valuable resource. This "Fifth Forest," a designation coined by Charles H.W. Foster, Dean of the Yale School of Forestry and Natural Resources, offers both an opportunity for wise management and use and the potential for a repeat of the exploitation of a century ago.

Connecticut has the distinction of being one of the most densely-populated states, yet is also one of the top ten states in terms of percentage of forested area. There are more than 1.8 million acres of woodland in the state. About 10 percent of this area, 180,000 acres, is State-controlled. These public lands are augmented by some 40,000 acres of municipally-owned property and about 140,000 acres of water-supply ownerships which may be considered as quasi-public.

At first glance, then, it appears that Connecticut is blessed with over 350,000 acres of public

# The Public Lands of the "Fifth Forest": Is Their Future Wise Management or Exploitation?

By Robert L. Garrepy, State Forester



Richard Harris

"The idea that undeveloped land is available for our use is just as important as is the actual use itself."

Now, definitions of the word "public" include the consideration of accessibility to the community. The individuals who collectively make up the community have the right to utilize the lands supported by their taxes. And public officials are frequently reminded of the fact!

However, another interpretation of the word "public" is "a group of people having a common interest." In reality, such groups are numerous, vary in size, rarely have

Most public land in Connecticut is forested, and wooded open-space may provide multiple benefits and a wide array of possible uses:

1. Intangible assets: clean, cool water; an ameliorating effect on temperature extremes; filtration of air pollutants; wildlife habitat and aesthetic considerations.
2. Non-consumptive public use: bird watching, hiking, cross-country skiing, wilderness camping.
3. Consumptive use of renewable resources: harvesting of wood products, hunting and fishing.
4. Consumptive use or single purpose use: roads, developed camping areas, beaches, off-road vehicle trails.

If the public land area is large enough, there should be room for all uses although probably not at equal levels of intensity. If the ownership is not so large, or if it is fragmented, then compromises must be made.

The intangible benefits are inherent in nature. Public use of an area will always detract to some degree, but who would say that an area should never be used by anyone? Any recreational activity, if intensive enough, can lead to consumption of or damage to a forested area. The ideal is to have maximum utilization without damage.

What is Connecticut's situation in regard to publicly-owned forest land?

Municipal Lands are generally close to population centers and are generally either undeveloped or provide only extensive recreational opportunities. There is very little forest management. These lands are underutilized at present.

Water Company Lands are generally use-restricted because of water-quality considerations, but there is wide variance in controlling public access. Forest management is an acceptable practice on virtually all areas. These, too, are underutilized at present.

Richard Harris



open-space in addition to those areas owned by various conservation trusts. But when one considers the fact that the population of Connecticut is nearly three-and-one-quarter million people, and that 80 percent of the woodland in the state is privately owned and generally unavailable for use by the public, the "blessing" does not come without considerable penance!

We, as a people, are far-removed from the land as a requirement for existence. We work in shops and factories, are transported by mechanical devices designed to minimize time spent in "uncivilized" areas, and receive nourishment, clothing and amenities packaged in a wide array of artificial containers. But we still turn to the land, in thought or deed, for recreation and an uplifting of the spirit. The idea that undeveloped land is available for our use is just as important as is the actual use itself.

one common interest, and, reflecting their taxpayer status and their independence, are extremely vocal.

The conscientious land manager, beset on all sides by active special interest groups, must make decisions that would test the wisdom of Solomon. The first step in making such decisions requires an evaluation of the resource base:

1. Public lands are finite -- except at the municipal level, there will be relatively little acreage added in the future.
2. Public lands are permanent -- they represent stable, long-term ownership in a time of rapid turnover of private property.
3. Public lands are public -- they can be used by people who have no other open-space available.

State Lands: unequal distribution of acreage creates areas of extreme use-pressure while other areas are underutilized. There is an increasing demand for a wide variety of recreational opportunities, many of which are incompatible with each other and/or have a negative impact on the forest environment. A limited but active forest management program is sometimes in conflict with specific recreational uses.

The common characteristic for all public lands is the fact that the forests provide the basis for most other resource-use considerations, and, with the exception of natural area or wilderness area designation, forest management activities can be modified to be compatible with other land uses.

With all our public land, if forestry is so important, why are we not doing more? The answer (and the problem!) is, of course, the public.

No forest management organization has sufficient funding to do an optimal job. Connecticut and California have the same problems only on different scales. But budget problems are only part of the story. More important is a general lack of understanding on the part of the public as to why land managers do the things they do. And in some cases, the land managers may not have adequate justification for their decisions!

What can be done to alleviate the situation? What does the future hold for the public lands segment of the "Fifth Forest"?

#### Municipal Lands

1. More towns should make use of Federal cost-sharing funds to acquire open-space land. It will never be less expensive. (For more information on availability of these funds, contact Edward Daly, DEP Open Space Acquisition Unit, Rm. 102, State Office Building, Hartford — 566-2904.)
2. With the advice of State Service Foresters and/or private forestry consultants, towns

can make use of forest management to provide direct revenue, goods or services in exchange for wood products, development of recreational facilities, or just fuelwood for local residents, while improving the resource.

3. Development of recreational facilities for local residents, particularly water-based activities, would reduce some of

"...wooded open space may provide multiple benefits and a wide array of possible uses . . ."



Steven Jackson

the pressure on over-crowded State areas.

#### Water Supply Lands

1. A careful study should be made of all land holdings not only to determine what lands are needed to provide for supply of water and protection of water quality but also to determine what uses of that land could be allowed without an unacceptable degradation of water quality.
2. Non-consumptive recreational uses could be tolerated to some degree, even if a sign-in, sign-out system were required. Such use would double the available acreage and would reduce pressure on State facilities.
3. Some areas of water company lands could be used for more intensive recreation uses. Careful analysis would be required to avoid adverse impact on water quality.
4. As part of a multiple-use plan, all forested water company lands should be under an active forest management program. Uncontrolled harvesting and a "leave alone" policy are equally non-productive over the long run.
5. Municipalities should recognize the benefits, both practical and intangible, that accrue from having water company lands within town bounds. It is often assumed that preferential tax assessment on open-space lands has a drastic effect on local tax

**"Increased management of private lands for recreation and wildlife... would greatly ease the burden..."**

revenues. However, a simple economic assessment will prove that conventional residential development costs the town more than is generated in tax revenue.

Open space is a good thing! Multiple-use open space is even better!

**State Lands**

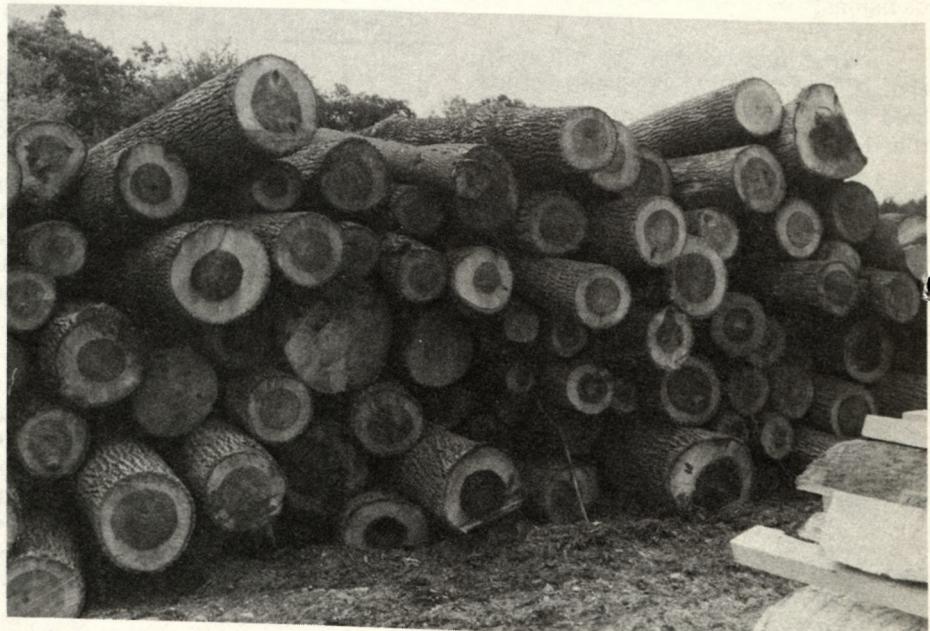
1. The term "State Land," commonly interpreted to mean DEP lands, should be expanded to include property under the control of the departments of Transportation, Correction, Mental Health and other agencies having substantial acreage.
2. A comprehensive, multiple-use plan of management must be developed for all State lands. This plan must contain a realistic assessment of the resource, an evaluation of actual and potential uses, and decision-making as to use priorities. Management decisions may be guided by property designation such as "State Park," but should not be restricted by designation alone.
3. A special property acquisition fund should be established for the purchase of those properties determined to qualify for State "Natural Area" designation. These monies, matchable

by federal funds, would be specific in purpose and would not be used for other land acquisition programs.

4. Forest management, modified as necessary, is compatible with most other uses of State land and should be intensified as budget and staffing allows.
5. An accelerated public information and education program must be implemented. Program support can be expected only when there is an informed and sympathetic constituency.

**What the public can do:**

1. Join and support the Connecticut Forest and Park Association. It represents the greatest source of support for resource conservation and management in the state.
2. Provide active support for local open-space programs.
  - a) Encourage acquisition of land for public use under the cost-sharing provisions of the Federal Land and Water Conservation fund.
  - b) Defend open-space tax classification for qualifying property owners.
3. Support local forest products industries — discourage planning and zoning regulations designed specifically to restrict the harvesting and sawmill industries.
4. Provide ACTIVE support for legislation that will improve the protection and management of the forest resource.
5. Remember that all public or quasi-public lands comprise only 20 percent of the State's forest resource. Increased management of private lands for recreation and wildlife as well as forestry would greatly ease the burden now carried by public land management agencies. ■



# Christmas Trees

a tie with history,  
a matter of taste,  
and, like corn  
or watermelons  
or roses, a crop



In its 1979 Christmas catalog, one of the area's more exclusive stores offered decorations for "our most elegant Christmas tree." They included crystal bells and balls, gold foil heart baskets, gold-beaded garlands, gold twinkle lights, and a gold foil star. Enough, the catalog suggested, to deck a four-foot tree. Cost: \$260!

For the poor or the Scrooges among us, other sets sold for \$120 and \$150.

A first question, looking at the ready-assembled, advertised assortments, is whether the finery offered would be sufficient.

If you bought a Christmas tree this holiday season, it was typically six to eight feet tall, and probably cost between \$10 and \$20. If you "play favorites," in this area you're likely to have chosen a white spruce . . . which was most likely locally grown and was eight to ten years old when cut.

According to the National Christmas Tree Association, 30 million Christmas trees are harvested annually in the United States from about 450,000 acres of forest land dedicated for this purpose. Some forty species are used as Christmas trees nationwide, but six varieties probably account for 75 percent of commercial sales -- balsam fir, Scotch pine, Douglas fir, cedar, white spruce, and white pine.

In Connecticut, according to Ralph Engels, president of the Connecticut Christmas Tree Growers Association, white spruce is the top favorite. Douglas fir and Fraser fir rank as "premium trees," he says: "But you can't grow them fast enough for consumers. They're tough to grow." Scotch pine is dropping in popularity, but white pine is gaining, although wholesalers don't like it because it doesn't ship well. Blue spruce also sells well here.

According to Engels, there are about 235 Christmas tree growers in the state, with a total of well over 2,000 acres in trees. Engels estimates that Connecticut's growers harvest about 250,000 trees annually. He is not ready, however, to hazard a guess at the total number of trees sold each year for use in Connecticut homes, businesses, and other organizations.

"We encourage local growing," he says. "If we could produce more, we could sell them." Engels predicted a shortage this year of Connecticut-grown trees available for wholesale to outlets, meaning these sellers will have had to go out of State for trees.

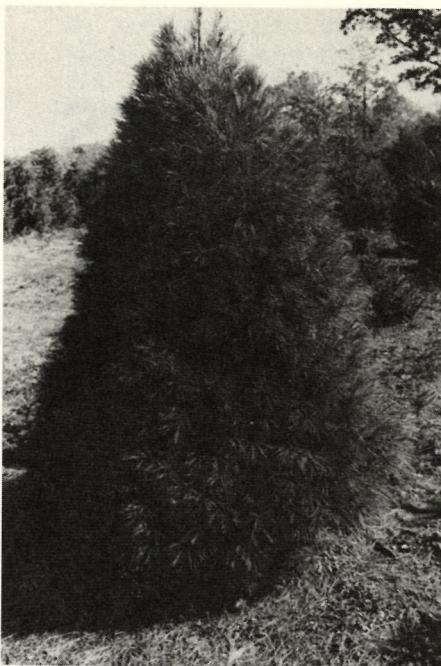
"Because of the insecurities of the Christmas tree business," Engels says, "you can't get many farmers to go fully into Christmas trees. Most of the State's growers produce trees as a part-time or second business. Only about half a dozen are full-time Christmas tree growers."

Why the demand for native trees? They are greener and fresher than trees cut in September or October in Canada or northern New England, says DEP Staff Forester Stanley House. More important, this means they should be safer --less likely to support combustion. A really fresh tree, House says, is practically fireproof.

House, too, recommends Christmas tree growing. "If you have some idle acres that are open or semi-open, Christmas trees may be worth considering." Most evergreens, he points out, grow well in poor soil and on land not fitted for other crops. "And the demand for live, fresh, native-grown trees is very strong. Everyone who has them and makes the effort can sell them."

Approaches to growing Christmas trees vary. One can raise a few trees for family and friends. If there is an acre of suitable land, you might raise about 1,200 trees (spaced every six feet to leave room for mowing machinery) or you might raise up to 2,000 on four foot by five foot spaces if you want to shear the trees and harvest them at a relatively early age and smaller size.

Producing trees involves work. There is at least a decade of planting, controlling weeds, brush, and disease, shearing, and fertilizing to consider. And, as Engels puts it, just when you think you've found the trees that grow best on your land, some new problem crops up. "You think you have the perfect tree, and then something else comes along." This year, for example, Connecticut's growers are dealing with a new insect problem -- white spruce gall-midge ruins the appearance of and may deform or even kill white



*Taking home the family tree, Robert, Michael, and Melissa Daglio of Granby, helped by Dick Hall, right, at Otis Adams' plantation in Canton. Trees on cover and these pages were grown at Colchester plantation of B. John Skawinski.*



spruce, Connecticut's largest Christmas tree crop.

All this, Engels thinks, may turn a number of beginning growers away from trees before their crops ever come to market size. He points out that each year the State Forest Nursery supplies close to half a million Christmas tree seedlings to Connecticut growers, but even excluding growers too new to be marketing trees, the total number of trees cut each year suggests that a large proportion of those planted never make it to market.

But there are plenty of success stories. John Skawinski showed an

October field meeting of the Connecticut Christmas Tree Growers Association his three-acre plantation, located on a piece of land in Colchester, "where you can go from one end to the other jumping from one stone to another." About 100 association members took the opportunity to learn from the experiences of Skawinski, who said he, in turn, got his education in Christmas tree growing from earlier association field meetings.

For Skawinski, Christmas trees are a retirement project that his children and grandchildren are also involved with. He first planted 2,000 white spruce and Douglas fir in 1963 and has added trees every year since. In the 1960s, he said, he just put in trees, doing no mowing or spraying. But after attacks of spruce gall aphid and white pine weevil in 1969, he evolved a regular

program for applying fertilizers, pesticides, and herbicides to control insects, weeds, and brush. Today he harvests 400 to 500 trees annually.

In the early spring Skawinski moves seedlings from transplant beds to the plantation. During the summer he shears trees to improve their shape and appearance. Along with basic problems of growing and marketing, in the Christmas tree business a grower must solve aesthetic problems. Sometimes individual spruce "don't look green at Christmas time." For these the answer Skawinski arrived at was a late summer dose of fertilizer.

There are the trees that, in a dry season, "yellow off." Some growers, including Skawinski, spray colorants on species prone to mid-winter pallor. Others, on the other hand, are staunch purists when it comes to clean, unretouched needles.

Approaches to growing Christmas trees are as diverse as the growers themselves. Among the controversies: Do you plant close together and harvest early? Do you plant trees in blocks of one species — for easier care — or mix varieties to reduce the spread of disease? Do you mow or use herbicides? Do you mow or spray a lot so trees mature fast, or do you do less and invest less and wait an extra year or two for trees to reach saleable size?

## Growers have their standards, but Christmas tree buyers are not always 'purists.'

Some growers wholesale their trees, though most, Engels reports, sell at least some on a retail basis. Some cut and sell at roadside; some let customers choose and cut. The latter approach, says House, who raises trees, means, "You don't waste trees. The customer sees the trees standing and cuts only the one he wants. There are no throwaways. And for many families, cutting the tree provides a recreational activity."

Some sellers price trees by the foot; some by quality; some charge one price for your choice of any tree. While you may occasionally find a \$3 or \$4 tree that "just grew up on some grower's lot," you should ordinarily expect prices to reflect the quality of care and grooming. In 1979 the average retail price for a good Christmas tree will probably range from \$10 to \$20. (One producer at the October field meeting reported that a customer had just selected and tagged ten trees at an average of \$72 apiece.)



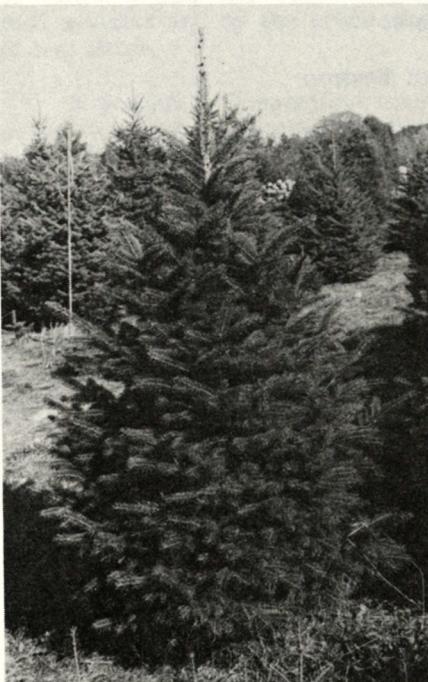
"Regardless of how they are sold, or at what price, real, naturally-grown trees represent a tie with the dim history of religion, a tradition throughout the Christian world, and an important part of Connecticut's yule season economy," says State Forester Robert Garrepy. "For those who feel that cutting trees for a two-week celebration is somehow wrong, foresters and Christmas tree growers are united in their consideration of trees as a renewable crop. Like corn, roses, or watermelons, Christmas trees are grown for a specific purpose. Those that are harvested are replaced with new seedlings. Those that, for some reason, are not cut grow into forest trees, valuable for timber, wildlife

habitat, soil stabilization, and aesthetic values."

If growers' approaches vary, so do the tastes of their customers. And these tastes change. Species gain or lose popularity. For the last three or four years, House says, the trend has moved toward less shearing, leaving trees more natural looking. For a while, he says, trees were so symmetrically sheared they looked artificial.

Growers have their standards. A good tree, House says, should be pyramidal, "thick enough so you can't read the newspaper through it," symmetrical, and well colored, along with being fresh and having tight needles.

The people who buy trees are not, however, always purists. "Buyer's choices are subjective. Like dogs, Christmas trees may reflect their owners' personalities," House says. "Some want their trees short and fat — like bushes. Some want them tall and skinny. Some want peculiar shapes. I had a customer who asked for a yellow tree."



Growing trees can offer something more than just hard work and chancy economics. Skawinski grows 14 different species including Greek stone pine, red pine, Mexican border pine, and southern pine and has phased out a few other species that didn't do well. "It's like fruit," he says. "You always wonder what some other species will do." In 1978 his white pine won three ribbons as "best in show" at the Eastern States Exposition.

"Sure there's money in Christmas trees," one growers' field day participant was overheard saying to another. "Every year I spend a lot on insecticides and herbicides and fertilizers." Faced with new diseases and even plain "failure to thrive" on the part of trees, a grower can lose money. On the

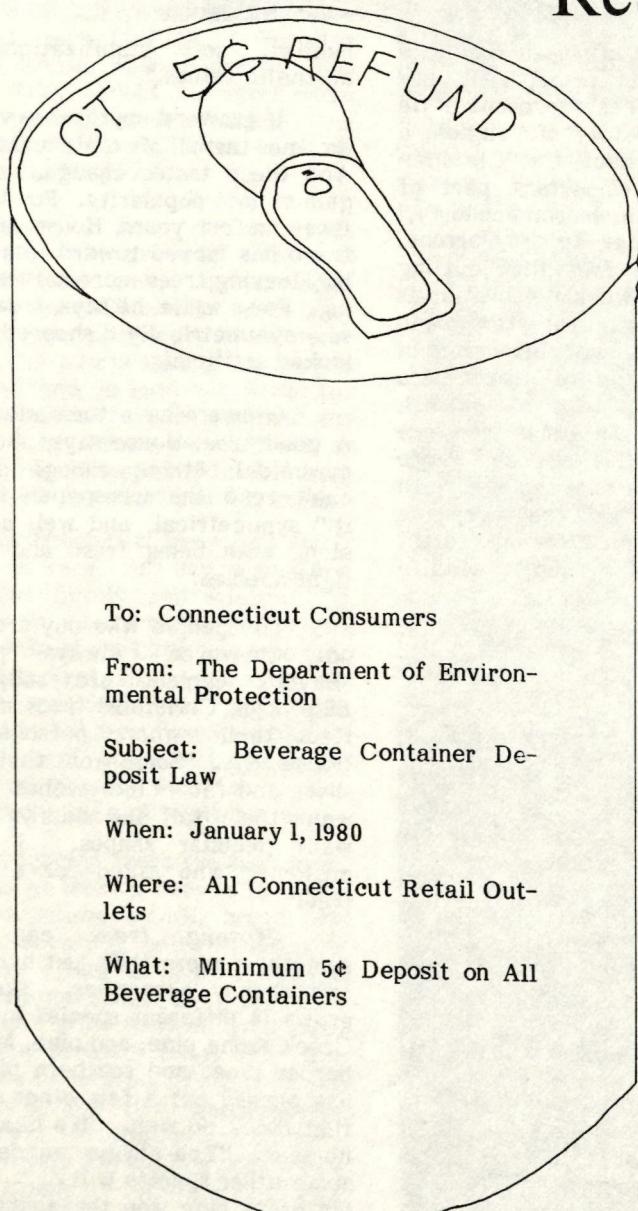
other hand, figure on selling several hundred trees at \$10 apiece and it's obvious there's a profit to be made.

With a growing time of six to ten years and current inflation, it's hard to calculate profits exactly. As House puts it, "It would take a sharp pencil to figure just what

you've made. If you don't charge off too much for the land, and you can do a substantial part of the work yourself rather than hiring someone, you're bound to make some profit."

And you may produce a grand champion. Or at least a worthy bearer of "our most elegant" crystal bells, gold garlands, and gold star. ■

## The Return of the Returnables



To: Connecticut Consumers  
From: The Department of Environmental Protection  
Subject: Beverage Container Deposit Law  
When: January 1, 1980  
Where: All Connecticut Retail Outlets  
What: Minimum 5¢ Deposit on All Beverage Containers

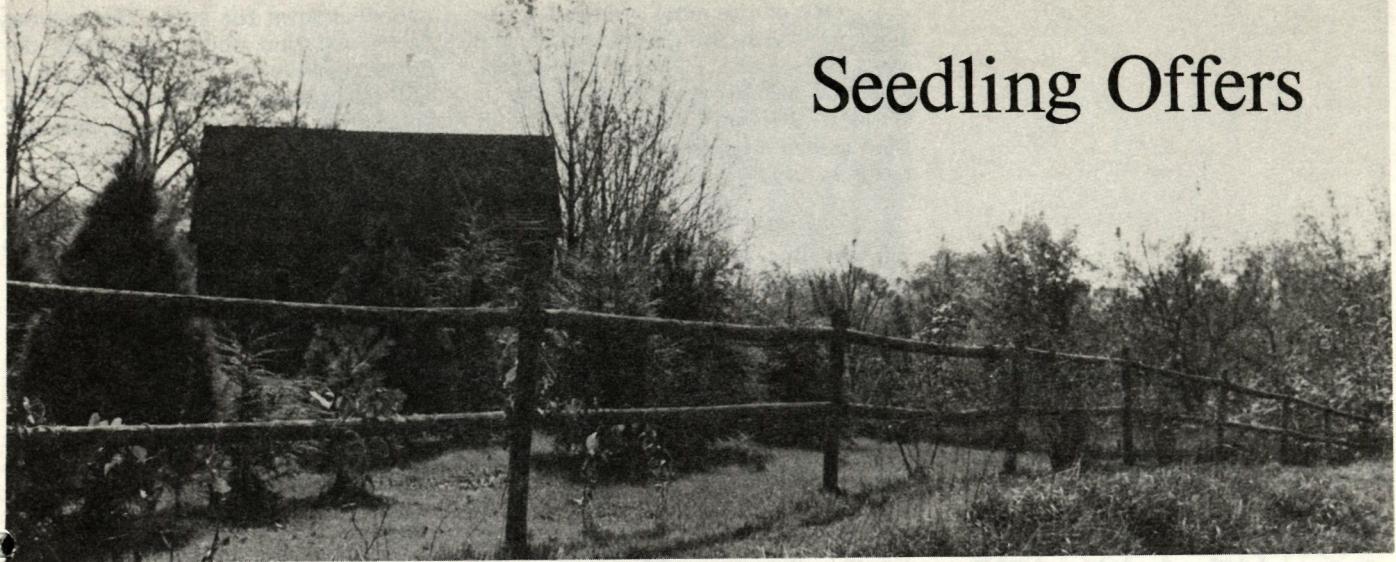
Legislation passed by the 1978 General Assembly requires a refund value of not less than five cents on all beverage containers (beer or other malt beverages, mineral waters, soda water and similar carbonated beverages in sealed glass, metal, or plastic bottles, cans, jars, or cartons) sold or offered for sale in Connecticut starting January 1, 1980.

You can help make the deposit system work by following these simple suggestions:

- 1) Rinse containers for maximum cleanliness
- 2) No broken bottles or jagged edges, please
- 3) Avoid crushing cans whenever possible
- 4) Don't stockpile containers - return at regular intervals
- 5) Be sure containers you are returning are marked as returnable
- 6) If possible, return containers in the standard case in which they are supplied — return only to a dealer who sells that brand and size

With your cooperation, the Deposit Law can conserve energy, natural resources, and landfill space, as well as reducing the number of cans and bottles littering the Connecticut roadsides. For further information, call the Connecticut Department of Environmental Protection, 566-5847. ■

# Seedling Offers



Over a million and a half tree and shrub seedlings will be sold at cost to Connecticut landowners again this year under three popular State Forestry Unit programs to encourage forest management and reforestation.

Last year about 1.6 million seedlings were sold in Connecticut under the Forest Planting Program. Many of these trees eventually will be sold as Christmas trees. In addition, over 450 owners of small parcels of land bought the 150-tree-and-shrub Wildlife/Soil Conservation Packets, and 2,300 landowners bought 50-seedling Buffer Bunches.

Again it is recommended that orders be placed as early as possible.

## Forest Planting Stock

Since the early 1900s, the State of Connecticut has fostered a tree planting program to better utilize acres of abandoned farmland and to improve forest stands. As encouragement, the State has supplied tree seedlings to landowners at production cost.

This reforestation program has gained momentum during the past decade as a result of broadened environmental concern, and the State continues to offer tree seedlings, still at cost, to qualifying landowners.

If you are a Connecticut landowner and intend to establish a forest or a commercial Christmas tree plantation on one or more acres (not including a house lot), you qualify for Forest Planting Stock.

Cost is \$10.50 per 250, or \$42.00 per 1,000, for: white spruce, white pine, hemlock, larch, Douglas fir, Norway spruce, and northern white cedar. Trees must be ordered in multiples of 250.

Hardwoods are available in limited quantities. Contact the DEP Regional Headquarters serving your town for details.

## Wildlife/Soil Conservation Packet

For many years the State Forest Nursery has also provided trees and shrubs for attracting wildlife and for soil conservation. Selected tree and shrub species provide food, cover and breeding areas or conserve soil with their hearty root systems and by the production of leaf litter.

If you are a Connecticut landowner and wish to provide food and cover for wildlife or to stabilize erosion-prone areas, and if you have space for at least 150 seedlings (a quarter of an acre or more), you qualify for this program.

The seedling packet includes: 50 white pine, 25 Norway spruce, 25 crabapple, 25 autumn-olive, and 25 silky dogwood. It costs \$16.00.

## Buffer Bunch

If you are a Connecticut landowner and do not qualify for Forest Planting Stock or the Wildlife/Soil Conservation Seedling Packet but would like to attract wildlife to your area, you can purchase the Buffer Bunch. It contains 20 tree and 30

shrub seedlings, six to twelve inches high.

The Buffer Bunch is expected to contain ten white pine, ten Norway spruce, fifteen autumn olive, and fifteen silky dogwood. Suggestions for planting are shipped with the packet. Cost is \$8.

- \* Seedlings may not be used for ornamental plantings nor resold with roots attached.
- \* All orders must be received by March 25. Delivery is scheduled for, and best time for planting is, early April to mid May.
- \* The nursery reserves the right to substitute species. There are no limits on numbers of packages that can be ordered, though numbers of any species in the Forest Planting Stock may be restricted if there is a shortage of any species.
- \* Wildlife/Soil Conservation Packets and Buffer Bunches will be sent by UPS. Forest Planting Stock must be picked up at designated pickup points.

Order forms, with descriptions and suggestions for planting and use of various species, are available from DEP's four regional offices:

- Region I: P.O. Box 161, Pleasant Valley, CT 06063 (379-0771);
- Region II: Judd Hill Road, Middlebury, CT 06762 (758-1753);
- Region III: 209 Hebron Road, Marlborough, CT 06447 (295-9523);
- Region IV: RFD 1, Box 23A, Voluntown, CT 06384 (376-2513). ■

# Sleigh Rallies in Connecticut Towns Provide Nostalgia, Pageantry, Beauty and Competition

By John Waters, Senior Environmental Employee

One of the most graceful creations of God is a high-spirited, high-stepping horse. One of the most graceful creations of man is a slender one-horse sleigh of the kind that glided over snowy Connecticut roads in days long gone.

Perhaps it is the desire to witness this combination of beautiful motion and beautiful form that draws as many as 7,000 enthusiastic spectators to the picturesque sleigh rallies in Connecticut's small towns. The rallies are sponsored by sleigh collectors, carriage clubs, pony clubs, horse-owners, livery stables, and just plain nostalgia lovers.

Up to a dozen classes of entries provide awards in such categories as driver, sleigh, costume, juniors, ride-and-drive horses, ponies, and draft horses. One of the most popular of the events is the Currier and Ives costume competition, in which entrants go to great pains and expense to dress up like the early Americans in the famous lithographs.

The unpredictability of snow makes it difficult for sponsors to establish firm dates for the rallies. Usually, a tentative date is announced, and sometimes an alternate "snow date" is set for a week later; but until the day of the event,

nobody knows for sure. Sometimes the group that sponsors a rally decides to have it take place with or without snow. If there's no snow, the sleigh rally becomes a carriage rally.

Last winter, Connecticut's sleigh rallies went through a round of rain-outs, reschedulings, and cancellations. But a rally two winters ago at the Wimler Farm in Durham drew 5,000 people. This rally has been an annual event for over a decade now. If you have seen the "Land of the Three" TV commercial that shows a sleighing scene, this is where it was photographed a few years ago. Incidentally, the driver of the sleigh in the lovely "Christmas card" commercial of a Mid-western brewer, which appears on TV during the holidays, is well known to Connecticut sleigh fanciers and is well respected as an expert. He lives just over the State line in Garrison, N.Y.

Among the towns where sleigh rallies were scheduled last year were Bridgewater, Durham, Granby, Johnsonville, Lebanon, Newtown, and Old Lyme. Just over the Massachusetts line, an annual sleigh rally in Hampden, northeast of North Somers, Connecticut, attracts a high percentage of its entrants and spectators from Connecticut.

Department of Economic Development photos





The Connecticut Department of Economic Development attempts to compile a list of rally dates each winter. After January 1, the schedule can be obtained at 210 Washington Street, Hartford, CT 06106, or by calling toll-free (in Connecticut) 1-800-842-7492 or (out-of-state) 1-800-243-1685.

Many of the rallies charge no admission but pass the hat. At some, the entrants invite a few spectators to take a little ride with them. If this all sounds like fun, get in the mood by playing your Leopold Mozart or Leroy Anderson sleigh-ride records, and wait for a snowy Sunday to enjoy the nostalgia, pageantry, beauty, and competition of a genuine Connecticut sleigh rally.

The Department of Economic Development has also put together the following list of farms and stables where groups can arrange horse drawn sleigh rides or, if the snow fails you, hay wagon rides. They suggest you make arrangements well in advance.

Coventry: Coventry Riding Stables, Nathan Hale Rd., off Rte. 31. (203) 742-7576.

Durham: Wimler Farm, Guilford Rd. (Rte. 77). (203) 349-3190.

Falls Village: Rustling Wind Stables, Canaan Mountain Rd., off Rte. 7. (203) 824-7084.

Farmington: Raintree County Stables, 1088 Farmington Avenue (Rte. 4). (203) 677-8104.

Southbury: G E M Morgans, Poverty Rd. (203) 624-6196.

Southington: Pleasant View Stables, 427 Pleasant St. (203) 628-7320.

Terryville: Wood Acres, Griffin Rd. (203) 583-8670.

Woodstock: Ridge Run Farm, Rocky Hill Rd., off Rte. 171. (203) 974-0831. ■



*Happy  
Holidays*

*From the  
staff of the  
Citizens'  
Bulletin*



71 capitol avenue hartford, conn. 06115

# CAM NEWS

## CAM Moves Toward Implementation: The Municipal Role

The following discussion outlines municipal management responsibilities under the Connecticut Coastal Management Act and explains the role the Department of Environmental Protection will play in assisting municipalities in carrying out their obligations. The discussion is intended to provide guidance to each municipality in preparing for implementation of coastal management beginning January 1, 1980.

### Coastal Boundary and Boundary Maps

The Connecticut Coastal Management Act (CCMA) gives coastal municipalities broad duties and responsibilities concerning coastal land use and resource protection within the designated boundary area. The Act defines the coastal boundary area to include: 1) that portion of the area covered by the federal Flood Insurance Program in the municipality that results from coastal (saltwater) flooding; 2) all areas within 1,000 feet of the mean high water mark of coastal waters; and 3) all areas within 1,000 feet of state designated tidal wetlands.

The Department of Environmental Protection will provide interim maps of the coastal boundary prior to implementation of the Act by municipal agencies on January 1, 1980. The maps will be prepared on United States Geological Survey Topographic base maps at a scale of

1:24,000. Final maps will be adopted by the DEP prior to July 1, 1980, following public hearings held locally.

With regard to the coastal boundary, the CCMA also provides that municipalities may adopt by regulation a boundary that is delineated by roads, property lines, and other identifiable man-made features to facilitate local implementation of coastal management (the DEP boundary will be based on a strict linear measurement). This boundary should approximate, but in no way diminish, the boundary established by the CCMA and mapped by DEP. The municipal planning commission should consider this boundary option since it may wish to prepare maps prior to July 1, 1980. If available in time, the DEP will use municipally-designated boundaries for the final boundary maps.

### Coastal Site Plan Review

Beginning January 1, 1980, municipal zoning commissions must implement coastal site plan reviews. The purpose of the review is to determine the compatibility of uses proposed on or adjacent to valuable coastal resources with the capacity of those resources to support the activities without experiencing significant adverse impacts. Coastal resources and adverse impacts are identified and defined in the CCMA. In addition, the impact of a proposed project, use, or activity upon future water-dependent development activities will be considered during the review.

Decisions under the coastal site plan review must be consistent with the coastal policies listed in the Coastal Management Act and advisory use guidelines contained in Connecticut's Coastal Management Plan. The advisory use guidelines will include detailed information on activities or uses to be regulated relative to specific coastal management policies. They will also pro-

vide information on impacts or activities consistent with the policies and measures to mitigate inconsistent impacts or activities.

Coastal site plan review will be implemented by municipal planning commissions, zoning commissions, and zoning boards of appeal as part of the existing process of evaluating the following activities when they occur within the coastal boundary: 1) buildings, uses, or structures subject to local zoning regulations; 2) subdivisions of land; 3) planned unit developments; 4) requests for variances; 5) requests for special exceptions; and 6) municipal improvement projects. In evaluating these activities, in addition to the criteria currently considered during project reviews, the appropriate commission will be required to consider the standards and criteria specified in the CCMA. Discretionary power to establish conditions for permit approval is granted to commissions responsible for reviewing coastal site plans and all decisions must be supported by the findings listed in the CCMA. To assist in the evaluation, applicants will be required to submit specific information regarding each proposed project's consistency with the coastal policies in the CCMA.

To ease the administrative and financial burden of implementing coastal site plan review, the zoning commission may opt to exempt by regulation any or all minor uses listed in the Act, including single family homes in non-sensitive resource areas. In addition, each commission responsible for evaluating the activities listed above may establish by regulation a filing fee to defray the costs of reviewing and acting upon coastal site plans. Prior to January, the appropriate commissions may wish to proceed toward adoption of regulations (e.g., publish notices, hold hearings, etc.) so as to take advantage of these provisions as soon after the effective date of the legislation as possible. How-

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The Air Compliance Unit of the Department of Environmental Protection now has an electric car. The car was converted from a gasoline-powered 1978 Chevette into an electric car by students at Tolland High School. This particular vehicle is not the "state of the art" in electric vehicles; however, it is a good example of what can be accomplished with a relatively simple system of batteries and an electric motor. Electric vehicle technology is not particularly new. Electric cars and trucks quietly moved down the streets back as early as 1900.

Air Compliance Unit staff members have already taken the electric car to two "energy fairs" and plan to take it to many fairs, symposiums, conferences and workshops in the future. If your organization is planning an event related to energy, transportation, or the environment and you would like to have Air Compliance Unit staff members attend, with the electric car, call Cindy Carey at 566-2568.

The vehicle uses a ten horse power electric motor powered by 12 six volt batteries. Its maximum speed is about 43 mph with a cruising range of approximately 40 miles.

Although electric cars are not suitable for all trips and are not the answer to all pollution problems, these vehicles do account for significantly less pollution than standard gasoline powered vehicles.

The following are some of the questions most frequently asked about the electric car:

**Q.** How far can it go between charges?

**A.** Forty miles.

**Q.** How much does the electricity cost?

**A.** About 2¢ per mile (gasoline cost for a gas car getting 20 mpg is roughly 5¢ per mile).

**Q.** Are there other costs?

**A.** Yes. Batteries must be replaced on the average of every three to four years.

**Q.** So, what are the advantages?

**A.** 1) Reduced maintenance costs (owing to the simplicity and durability of the electric motor): there are no "tune-ups," oil changes, or other scheduled engine maintenance; there is no muffler.

2) Pollution created by the powerplant is ten to 50 times less than the pollution from a gasoline car (depending on the fuel in the plant).

3) Its use doesn't necessarily increase depletion of scarce fossil fuels -- electricity is multi-sourced (solar, wind, geothermal,

hydro, natural gas, etc.).

4) As gasoline costs increase, electric vehicle operating costs will grow relatively cheaper and cheaper.

**Q.** How do I recharge it?

**A.** Just plug it into a standard 110 v. household circuit.

**Q.** How long does it take to recharge?

**A.** Eight hours, if it has gone 40 miles. Less time with less distance.

**Q.** If it can only go 40 miles a day, what good is it?

**A.** In Connecticut, 87 percent of all commuters travel less than 15 miles to work. In fact, the average commute is only 8 miles.

**Q.** Yes, but how about all those other trips?

**A.** Obviously, the electric car isn't the one vehicle for all purposes. You couldn't make it to Boston. However, nationwide over 90 percent of all second cars go less than ten miles a day. In Connecticut it is estimated that 91 percent of all trips are less than 15 miles.

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# ELECTRIC CAR

Drive 43 mph  
and carry  
a long  
extension cord



By Martina Delaney,  
Citizens' Participation Coordinator

## For Your Information

### Open Space Indexing A Valuable Exercise

A conservation commission must, according to the enabling legislation — General Statutes, Sec. 7-131a(b) — "Keep an index of all open areas, publicly or privately owned, including open marshlands, swamps and other wetlands, for the purpose of obtaining information on the proper use of such areas..."

How can a conservation commission best index its open areas?

First, define an "open area." What land will be included in the open area index? Obviously, an open space area is an undeveloped area, and wetlands, forests, fields, etc., would be included. Also included would be parks, school ground recreation areas, and other publicly owned open areas. According to the enabling legislation, undeveloped plots of privately owned land should be included as well. Since there is no fixed legal definition of open area, a commission might preface its index with its own definitions.

An index can be as simple as a verbal listing of undeveloped land areas. Most useful, however, would be mapping the open areas on a base map with a written description of the land characteristics, made as detailed as is feasible or useful. This is the point at which the natural resource inventory and the open area index mesh. With the

combination, a commission will have data on open land which may at some point be developed, and also on the resources and systems which should determine characteristics of that development, such as suitability for septic systems. The natural resource inventory provides the detailed description of the land and the basic information on the proper use of such areas."

After defining for its own use the term "open area" and the form its index will take, a commission is ready to begin the index. For initial data, a commission may obtain from the local assessor most of the information needed to prepare and index open space areas. The assessors have property maps and/or aerial photographs and records of ownership. Actual field checking will confirm whether an area remains undeveloped.

If a commission is going to spend the time field checking the open area, however, it would be sensible to do a thorough job and gather as much data as is useful to complete the natural resource inventory as well as the open area index. To do this, the commission would best prepare for the field work by gathering the available data for each area, pinpointing the additional information which would be useful to have, and preparing to record it properly.

Such information might include bedrock outcrops, which may

not be shown in detail on available maps, vegetation or wildlife habitats, which probably are not mapped at all, valuable trees, features of local historical note, etc. An on-the-spot sketch of the area might be useful, as would photographs.

In field checking an area, commission members should realize they will probably have to walk on private property, and should get landowner permission. It might be wise to publicize what the commission is doing, and why, notify the police, and carry identification.

### Sensitive Environmental Areas

Planning and zoning regulations and other environmental ordinances on the local level control the largest proportion of land use. There are, however, regional, state, and federal programs, plans and area management techniques which may affect or direct land use plans and procedures through regulations, financial incentives, etc. These are generally directed at provision of services such as recreation or energy in which all of the people of the state share, or at what have come to be called critical or sensitive environmental areas — areas in which exist natural resources and natural systems valuable to the sustenance of life. In these sensitive areas, uncontrolled use of, or incompatible development on, the resources could result in significant degradation of the environment, or danger to public health and welfare. As a result, activities on these sensitive areas are increasingly coming under study and regulation. (The term "critical environmental areas" should not be confused with "areas of critical concern" which is a term in common use for "areas or uses which are of significant interest to or would have an impact upon inhabitants of an area far beyond the local jurisdiction which possesses the zoning or other land use regulatory powers." A critical environmental area can be, and often is, an area of critical concern, but the latter term also encompasses manmade sites such as highway interchanges, new communities, ports, power plant sites, sewage lines, and solid waste disposal areas.)

*From the Handbook for Connecticut Conservation Commissions.*

# 208 water quality management

## 208 Hazardous Waste Study Update

If media exposure can be considered a barometer, the issue of hazardous waste disposal has surfaced as the number one environmental problem in the United States. On an almost daily basis new "horror stories" appear which graphically depict the results of the indiscriminate disposal practices of the past 50 years. Such locations as Love Canal, New York, and Lowell, Massachusetts, have achieved national prominence, albeit for dubious reasons, because of hazardous waste.

Connecticut, too, has had its share of incidents. Plainfield and Canton have had serious pollution problems which have been caused by the disposal of industrial wastes. On a smaller scale, many other communities have experienced contamination of individual wells by industrial compounds.

During the greater part of 1979, the 208 Program has been studying the problem of hazardous waste disposal in Connecticut. If the State is to comply with the regulations proposed by the Federal Resource Conservation and Recovery Act (RCRA), which are due to be promulgated shortly, it will have to develop facilities that can safely treat and dispose of hazardous wastes.

RCRA will require "cradle to grave" management of hazardous wastes. This means that a tracking system will be established to monitor such wastes from the point of generation to their ultimate disposal. Such a system will help to ensure that improper disposal practices will be largely eliminated. But the fact remains that Connecticut does not now have facilities which can comply with the Federal law.

The 208 study is preparing the groundwork for the eventual development of such facilities. A technical consultant, The Research Corporation of New England (TRC), has compiled an inventory of hazardous waste generation in Connecticut as well as of disposal practices currently associated with these wastes.

Utilizing data on the percentage of production employment represented by the inventory survey, TRC extrapolated hazardous waste generation from total production employment.\* The total projected hazardous waste for Connecticut in 1979 is:

Oil	- 10.8 million gallons
Solvents	- 5.3 million gallons
Sludge	- 70.1 million gallons
Chemicals	- <u>8.0</u> million gallons
Total	94.2 million gallons

In addition, 311.0 million pounds of "other materials" were inventoried which were not extrapolated to total employment.

\*A standard, statistical practice whereby one multiplies the material produced by a single production worker times the total number of production workers employed in the same type of industry to arrive at the total amount of material produced by that industry.

These "other materials" include large volumes of air pollution control residues, mycelium (fungi used in the manufacture of pharmaceuticals), filter cake (from air and water pollution scrubbers), and miscellaneous materials.

Current hazardous waste management practices vary by waste category. The TRC survey discovered the following:

- 99% of the waste oil reported is presently reclaimed or burned in-house;
- 58% of the solvents inventoried is presently reclaimed or conveyed to private treatment and disposal facilities;
- 42% of the solvents inventoried is presently incinerated;
- 78% of the sludge reported is disposed of on company sites;
- 19% of the sludge reported is disposed of at municipal landfills;
- 84% of the chemicals reported is conveyed to private treatment facilities.

In addition, companies surveyed reported a stockpile of 10 million gallons of metal sludge that will require further management.

What this amounts to is a problem of monumental proportions. Connecticut generates close to 100 million gallons of hazardous wastes annually. Only three small companies now exist in the State which currently treat and/or recycle or dispose of such wastes. Obviously, a better system is needed.

Next month we will examine the progress made to date to develop such a system. ■

By Joseph M. Rinaldi,  
208 Public Participation Coordinator,  
209 Court St., Middletown, Ct. 06457

# LEAD SHOT

## Getting It Out of Waterfowl Diets

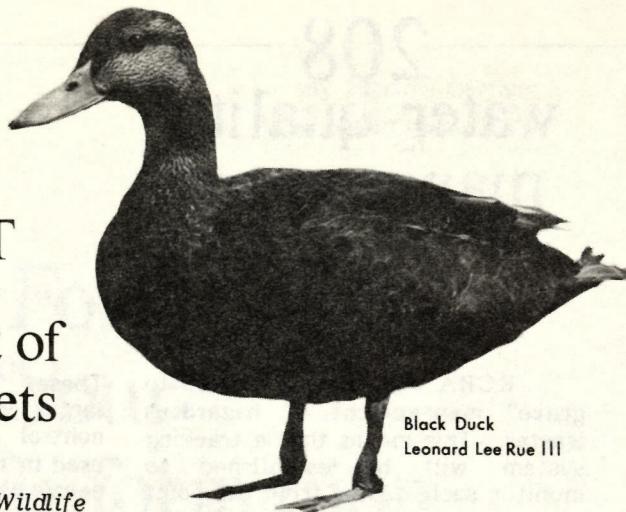
By Thomas R. Hoehn, DEP Wildlife Biologist, and Penelope Howell-Heller, Research Assistant, DEP Wildlife Unit

Every fall New Englanders have the pleasure of seeing the graceful silhouettes of duck and goose flocks flying overhead in their annual fall migrations from their northern breeding grounds to the Middle and Southern Atlantic States. The earliest diaries of New England settlers mention the large flocks of waterfowl that helped many a household make it through the winter.

However, as long ago as the turn of the century there was a danger of losing large numbers of our waterfowl to lead poisoning. Ducks are poisoned when they eat lead pellets from spent shotgun shells that are left on mud flats and marshes. Dabbling ducks, such as mallards, black ducks, and pintails, are especially affected because they normally feed on seeds and snails that are the same sizes as the various gauges of lead shot. When ducks ingest solid lead, the poisoning problem is similar to the poisoning of children by lead paint or lead compounds suspended in the air by automobile exhaust from cars using leaded gasoline.

As in humans, lead poisoning causes paralysis of the most frequently used muscles, such as intestinal, vocal, wing and neck muscles, by replacing calcium in those muscles. Since poisoned birds can neither eat nor fly normally after the onset of the disease, many are lost to starvation and predation.

The U.S. Fish and Wildlife Service estimates that 3,000 tons of lead are deposited annually in the



Black Duck  
Leonard Lee Rue III

nations' wetlands, killing 1.6 to 2.4 million ducks and geese, or two to three percent of the annual fall migration. Studies by DEP biologists have shown that seven to eight percent of black ducks and mallards shot by hunters in some areas of Connecticut carry ingested lead. Some marshes and shoal waters retain lead very near the surface for years where it is available to feeding ducks.

For this reason, DEP wildlife biologists have begun a two-year project to determine the extent of the loss of Connecticut waterfowl from lead poisoning. The problem of assessing the effects of lead shot ingestion on waterfowl populations is complex due to interacting factors such as the diet and the physical condition of the duck. A well balanced diet of fresh vegetation and animals such as crabs and snails greatly reduces the toxic effects of ingested lead, whereas a diet of corn, bread, or other starchy human foods appears to increase lead's toxicity.

Ducks feeding along the Connecticut shoreline usually get a good, balanced diet of about 70 percent vegetation and 30 percent animal material. In the midwest, where many migratory waterfowl feed in agricultural fields after the fall harvest, mortality from lead poisoning is higher than in the East even though the ingestion of lead is lower.

Connecticut DEP studies have found that penned mallards kept on their natural diets seem to be less susceptible to poisoning from lead than similar experimental animals fed more starchy diets. However,

the animals kept on a natural diet retained the lead shot longer in their digestive tracts so they were exposed to the lead for a longer period of time. This longer retention time may cause higher mortality under stressful winter conditions.

It is clear that there is no simple solution to this longstanding problem. State and Federal Agencies have begun to take corrective steps. The U.S. Fish and Wildlife Service and Connecticut's DEP have banned the use of lead shot in 12-gauge guns for waterfowl hunting in areas in Connecticut where ingestion of lead is known to be high. Non-toxic steel shot must be used in these areas by hunters with 12-gauge shotguns.

However, even though years of chemical and ballistic research went into producing this non-toxic alternative to lead shot, some hunters have found steel shot ammunition unsatisfactory as well as quite expensive. Steel shot loads have a shorter effective range and tighter shot pattern. For example, a full choke shotgun which patterns 75 percent of the shot charge in a 30 inch circle at 40 yards using lead shot ammunition will place 80 percent of the pellets in the same circle using steel shot ammunition. Another characteristic is that steel shot loads have a shorter shot string and fewer pellets. The end result is that hunters using steel shot must adapt their shooting to the ballistic qualities of the steel shot loads.

The DEP recently received a grant from the U.S. Fish and Wildlife Service to assess the rate of lead shot ingestion by Connecticut ducks and translate that ingestion rate into a mortality estimate. During the fall months wildlife biologists and conservation officers will be collecting tissues from hunter-killed ducks.

The need to evaluate and quantify the effects of pollutants and toxic substances on wildlife is one of the major issues being addressed by the DEP Wildlife Unit. Connecticut has abundant waterfowl available for bird watching and for harvest by sportsmen. Our intention is to avoid waste because of accidental lead poisoning or other problems, which is one of the fundamentals of wildlife management. ■

## Coastal Management From p 14

ever, the actual passage and formal adoption of these regulations should wait until January 1, 1980, when the authority to enact the regulations takes effect.

While it is advisable that municipalities adopt these two specific regulations in order to facilitate the site plan review process, it should be noted that no municipal regulations or ordinances are necessary or required to implement the basic coastal site plan review process. Unlike the Connecticut zoning and subdivision statutes, the CCMA is not "enabling legislation" that requires the adoption of ordinances or regulations at the municipal level in order to exercise the statutory authority. Rather, as summarized in the preceding paragraph, all necessary legal authorities, standards, and criteria for coastal site plan review are contained specifically in the Connecticut Coastal Management Act.

## Financial Assistance

As of January 1, 1980, \$2,500 will be sent to each coastal municipality to help defray the cost of implementing coastal site plan review. When additional federal funds become available through federal approval of the state's coastal management plan or additional state funds are freed for use by local municipalities, a portion of these funds will be passed on to each town. These additional funds will provide continuing funds to offset the costs associated with coastal site plan review and for preparation of municipal coastal programs.

At the present time, the specific requirements of the municipal grant program have yet to be resolved. Early next year, the DEP will promulgate regulations outlining application requirements and reporting requirements relative to the grant program. All coastal municipalities will be notified when these regulations become available.

## Technical Assistance

Prior to January 1, 1980, coastal municipalities can expect to receive resource factor maps and other information concerning the location and general condition of coastal resources within the coastal

boundary of each town. This information is part of the technical assistance outlined in the Coastal Management Act and will help local commissions implement coastal site plan review. A list of resource factor maps will be available for use in the coastal site plan review process.

To further assist coastal municipalities with new coastal management responsibilities, the DEP is scheduling a continuing series of workshops. Workshop topics will include mapping (using resource factor maps and selecting man-made features which approximate the coastal boundary), con-

ducting site plan reviews, and preparing municipal coastal programs. Town agencies responsible for implementing coastal management will be contacted.

Staff members are available through the CAM program to assist in answering technical questions relating to coastal site plan reviews or development of municipal coastal programs. Technical staff members are also available on request to assist in the evaluation of coastal resources and development impacts within the coastal boundary area. Please direct questions and inquiries to the CAM Program, or call 566-7404. ■

## Electric Car! Idea Whose Time Is Coming? From p. 15

**Q.** Where can I buy one, and how much does it cost?

**A.** There are currently no passenger electric vehicles mass-produced on a large scale. There are some prototypes used for experiment, and some very expensive limited production models. There are also some do-it-yourself kits (which the Clean Air Car is) that convert gas powered cars to electric. Soon several firms are expected to produce vehicles similar to the Clean Air Car. Major manufacturers have prototypes that have a 60 mile range and 60 mph top speed. They estimate their vehicles could be mass-produced for less than \$6,000. It is

very possible that electric cars can soon be mass-produced at lower costs than gas powered cars due to their simplicity (the motor has one moving part compared to hundreds in gasoline engines). The technology is here. With breakthroughs in battery technology, it is possible that electric cars could replace a large percentage of gasoline cars in the future.

**Q.** How much pollution is produced by the electric car (in pounds per 10,000 miles) in comparison with standard cars?

**A.** Smog and carbon monoxide are the worst air pollution problems in Connecticut. The generation of electricity to power electric cars adds virtually none of these to the air and only small amounts of other pollutants.

	Gasoline-powered car	Electric car*
Hydrocarbons	66	less than 1
Carbon Monoxide	218	1
Nitrogen Oxides	34	17
Suspended Particles	1	less than 1
Sulfur Oxides	3	18

\*from source of generation of electricity, not the car itself. ■

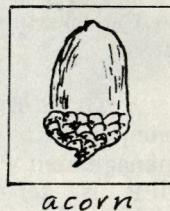
# Trailside Botanizing

by G. Winston Carter

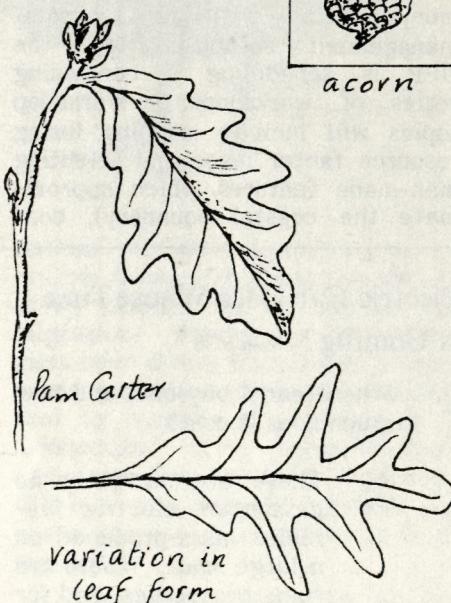
The white oak, commonly found in dry upland woods, is a majestic and sturdy tree sometimes living to 600 years. The early pioneers used the presence of white oaks as a factor in determining building sites, as it indicates deep rich soil.

Interestingly, even in late fall or winter the white oak can be identified by its leaves with their rounded lobes, unlike the pointed lobes of the red and black oaks. At this time of the year they are brown in color, but before another year has elapsed there will be the pink new leaves of spring, the green leaves of summer, and the red leaves of fall. White oak can also be identified by its rather white-grayish, scaly bark, its star-shaped pith (cross-section), and its clustered blunt winter buds.

White Oak  
*Quercus alba*



acorn



In the spring you can make many other discoveries. When the winter buds open, the young leaves that emerge are a very attractive pink and silver. When these leaves were the size of the ear of a mouse, the early pioneers believed it was time to plant their corn. The staminate flowers (male) which appear May to June are long, light green, thread-like catkins. The pistillate flowers are bright red.

White oak acorns are rather scarce because it takes about 50 years for the tree to produce its first crop of acorns, and they are favored as food by various wild animals. The wood of the white oak is strong and beautiful and perhaps has more uses than any other timber.

## DEP citizens' bulletin

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